REMARKS

Claims 2-5 and 7 are pending. By this Amendment, claims 1 and 6 are canceled without prejudice or disclaimer and claims 2-4 and 7 are amended. Claim 7 is rewritten in independent form to include all of the features of the base claim (i.e., claim 1) and the intervening claim (i.e., claim 6). Therefore, Applicants respectfully submit no new matter is presented by this Amendment.

Drawings

Enclosed herein are Formal Drawings of Figures 1-9B, which were corrected in the Response dated April 3, 2003 and approved by the Examiner in paper number 18 (dated May 2, 2003). The changes to the drawings are evident in the April 3 submission.

Claim Rejections - 35 U.S.C. § 102

Claims 1-7 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP 8-326770 (hereinafter "JP '770"). Applicants respectfully traverse the rejection.

Pending claim 7 recites a tripod constant velocity universal joint including an outer joint member having three axial track grooves in an inner periphery and roller guide surfaces formed in opposing side walls of each track groove. A tripod member has three radially projecting trunnion journals. Rollers carried by respective trunnion journals are received in the track grooves of the outer joint member, each roller being guided on a part-spherical outer peripheral surface by the roller guide surfaces. Contact between the roller and the roller guide surfaces is circular contact having a contact ratio 1.01 or above, wherein a width dimension of the roller is reduced to an extent that a contact ellipse produced by the roller during application of a predetermined torque does

not deviate from an end surface of the roller. The contact ratio is defined by a ratio of a radius of curvature of the roller guide surface relative to a radius of curvature of the outer peripheral surface. A portion of the roller guide surface corresponding to the end of the roller is formed with a relief portion, which is an arc smoothly connected to ends of the roller guide surface. See Figure 1 for an exemplary embodiment of the claimed invention.

Essentially, the claimed invention is directed to a tripod constant velocity universal joint having one point (i.e., circular) contact and a track groove larger than a roller outer diameter, as evidenced by the contact ratio being at least 1.01. A contact oval, generated during application of a predetermined torque load, is not diverted from an end surface of the roller. The claimed invention is also provided with an arc-shaped escape (i.e., relief) portion formed on the ends of the roller guide surface corresponding to the roller end portion and is smoothly connected to the roller guide surface. The escape portion prevents biting of the track and roller, thereby extending the overall life of the claimed invention while reducing vibrations during operation.

The Office Action states Figures 1-3 of JP '770 show a tripod constant velocity joint having an outer joint member 1 with three axial track grooves 1a in an inner periphery and roller guide surfaces 1a formed in opposing side walls of each track groove. A tripod member 2 has three radially projecting trunnion journals 2a. Rollers 3, which rotate around respective trunnion journals 2a through a plurality of needle rollers 6, are also received in the track grooves. Each roller 3 is guided on a part spherical outer peripheral surface by the roller guide surfaces.

The Office Action further states Figure 3C of JP '770 shows the contact between the roller 3 and the roller guide surfaces 1a is circular contact having a contact ratio 1.02 – 1.2, wherein the width dimension of the roller 3 is reduced to an extent that a contact ellipse produced by the roller during application of a predetermined torque does not deviate from an end surface of the roller 3.

The Office Action also states the figures of JP '770 show the ratio Ls/do is 0.24 – 0.27 and that Figures 3A and 3C, in particular, show guide surface 1a with a relief portion that in Figure 3C is at least a smooth arc.

Applicants respectfully disagree with the statements by the Office Action with respect to what is shown by JP '770.

JP '770 discloses a tripod constant velocity universal joint wherein at least a portion of, and even the entire, outer periphery section of the roller is formed by or coated with a self-lubricating resinous material, which reduces vibrations by decreasing frictional resistance and absorbing some of the vibrations as well.

The relief portions 1a, 1a of the track groove shown by Figure 3A of JP '770 is not arc shaped and is definitely not smoothly connected to ends of the roller guide surface. Rather, the relief portions 1a, 1a shown in Figure 3A of JP '770, while located corresponding to the respective radial ends of the roller 3, are more of a step-shaped feature that is not a smooth arc and is not smoothly connected to the ends of the roller guide surface.

Furthermore, the "relief portion" 1a shown in Figure 3C of JP '770 is not a relief portion as shown in Figure 3A. In Figure 3A of JP '770, the "relief portions" 1a, 1a are

actually portions of the roller guide surface having a different dimension than other portions of the roller guide surface, which make contact with an axial end of the roller 3.

In Figure 3C of JP '770, the roller guide surface 1a has a constant dimension and does not deviate towards or away from the axial end of the roller, wherein a "relief or escape portion" would be formed. In other words, there are no relief portions connected to the ends of the roller guide surface as the roller guide surface of Figure 3C for JP '770 appears to have a constant radius. As such, Figure 3C of JP '770 cannot and does not have any relief portions connected to the ends of the roller guide surface.

To qualify as prior art under 35 U.S.C. §102, a single reference must teach, i.e., identically describe, each feature of a rejected claim. As explained above, JP '770 does not disclose or suggest each and every feature recited by pending claim 7. As such, Applicants respectfully submit JP '770 does not anticipate or render obvious the invention recited by claim 7.

As such, Applicants respectfully submit that claim 7 be deemed allowable.

Claims 2-5 depend from claim 7. It is respectfully submitted that these dependent claims be deemed allowable for at least the same reasons as claim 7, as well as for the additional subject matter recited therein.

Withdrawal of the rejection is respectfully requested.

Conclusion

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding rejection, allowance of claims 2-5 and 7, and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 100725-00040**.

Respectfully submitted,
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Enclosures: Formal Drawings of Figs. 1-9B (9 sheets)

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